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ABSTRACT

This study explored how elementary school teachers' mental images of their schools, as revealed by metaphor, were related in systematic ways to the perceptions their students had of the classroom psychosocial environment. The data were gathered during 1992 from 1,923 students and their teachers in 162 classes in grades 5-8 in Tasmania, Australia. The schools were in rural and urban locations; the teachers were 31 percent male and 69 percent female; students were 40 percent male and 60 percent female. Teachers' images of their school were assessed through the administration of a questionnaire, developed for the study, called "Images of Schools through Metaphor" (ISM), asking teachers to indicate the extent to which they agreed or disagreed with each of 26 metaphors (e.g., "my school is a mental straight jacket" or "my school is an orchestra"). Respondents were also invited to add other metaphors (less than 10 percent did). Students' perceptions of the psychosocial environment of their classroom were assessed through administration of a questionnaire. Results of examination of both sets of data found that nearly every metaphor was associated with at least one classroom environment scale. For, instance "School as Family" and "School As Olympic Games" were associated with cohesiveness, satisfaction, and democracy in a positive direction and with speed or difficulty in a negative direction. School leaders ought to consider it important to inquire into the nature of the images their teachers have of their schools and to contemplate ways of building or strengthening particular images in them. (Contains 50 references.) (JB)

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RELATIONSHIPS BETWEEN TEACHERS' IMAGES OF SCHOOL AND STUDENTS' PERCEPTIONS OF CLASSROOM ENVIRONMENT

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PURPOSE and BACKGROUND

Purpose

This paper attempts to demonstrate that teachers' mental images of their school, as revealed by metaphor, are related in systematic ways to the perceptions their students have of the classroom psychosocial environment. As a consequence, it is claimed that school leaders ought consider ways and means of influencing teachers' images of the school in a positive manner in order that students' learning can be enhanced.

Teachers' Mental Images

The Spring, 1994, edition of the American Educational Research Journal presented a very interesting article which described how preservice students in teacher education engage in self-information and self-exploration processes to bring into the light of day images of self and personal metaphors which have an important part to play in becoming a "teacher" (Bullough and Stokes, 1994). This sort of inquiry, in our view, is essential if teachers in training or in the field are to improve continually their teaching practice.

It is contended that teachers' mental images are affected by many phenomena, including the range of "world hypotheses" (Pepper, 1942); the nature of paradigms which 'account for the relatively unproblematic character of professional communication and for the relative unanimity of professional judgement' (Kuhn, 1977, p.462); and the organisational culture of the workplace which reflects the group's 'agreement, implicit or explicit, on how to approach decisions and problems: "The way things are done around here"' (Kilmann et al., 1985, p.5), and which indicates the 'shared values, beliefs and commitments of school members *across an array of dimensions'* (Sergiovanni, 1991, p. 218).

Teachers' images of themselves as teachers are likely to be congruent in some measure with their images of the school in which they work.

Boulding (1956), Polanyi (1958), Argyris and Schon (1978), Kosslyn (1980), Bullough et al. (1984), Morgan (1986), Clark (1988) and Murdoch (1992), among others, have described well the nature of the "mental images", "tacit knowledge", "quasi-pictorial representations", "subjective knowledge of fact and value" or "theories-in-use" which play an important role in shaping behaviour. A difficulty, though, lies in accessing what are likely to be vague, fragmentary, uncertain and porous subconsciously-held

understandings and assumptions. Nevertheless, the claim made by Lakoff and Johnson (1980, p.4) is instructive:

> Our concepts structure what we perceive, how we get around in the world, and how we relate to other people. . . . If we are right in suggesting that our conceptual system is largely metaphorical, then the way we think, what we experience, and what we do everyday is very much a matter of metaphor.

Thus, not only are people's mental images metaphorical in nature, but they can be acquired through metaphor and accessed or described, in part at least, through metaphor. Note how Jackson (1968) drew parallels between schools on the one hand and prisons and mental hospitals on the other and how he demonstrated that teachers are traffic cop, judge, supply sergeant and time-keeper; that the teacher is the student's first "Boss"; and that children, generally, become aware that in schools, as in factories and prisons, good behaviour "pays off" and so seek to become "good workers" and "model students". Jackson pointed out too that 'From kindergarten onward, the student begins to learn what life is really like in The Company' (1968, p. 37). Similarly, school as drama rehearsal room (after Starratt, 1990), school as knowledge workplace (Schlechty and Joslin, 1986), or school as firm, as family, as fair, and as forum (Baker, 1991), for example, can be posed.

It was Aristotle who held that the vividness of good metaphors consisted of their 'ability to "set before the eyes" the sense that they display' (Ricoeur, 1979, p. 142). Similarly, Aristotle, according to Ricoeur (1978, p. 34), indicated that, through metaphor, one can make hearers *see* things. Ricoeur (1979, p. 142) took this "seeing as" attribute to be the *picturing* or iconic or imaging function of metaphor, while Langer (1957, p.141), in like attitude, saw that 'Metaphor is our most striking evidence of *abstractive seeing*'. Metaphor , then, has much to do with mental image.

Schon (1979, p.254) was another who treated metaphor as being 'central to the task of accounting for our perspectives on the world: how we think about things, make sense of reality, and set problems we later try to solve'. This sense of metaphor, claimed Schon (1979, p. 254), 'refers both to a certain kind of product - a perspective or frame, a way of looking at things - and to a certain kind of process - a process by which new perspectives on the world come into existence'. Morgan (1983a, p.13), when talking about the impact of metaphor on the construction of theory, pointed to the way 'different images of a subject guide and prefigure, and hence shape, *what is seen*' (our emphasis). Morgan (1983b, p. 21, Fig. 2.1) elaborated as follows:

> Scientific knowledge is shaped by the way researchers attempt to concretize the ground assumptions that underwrite their work. Images of a social phenomenon, usually expressed in terms of a favored metaphor, provide a means of structuring scientific inquiry, guiding attention in distinctive ways. The image favours a particular epistemological stance in suggesting that certain kinds of insight, understanding, and explanation may be more appropriate than are others. Different ground assumptions and the images through which they are grasped and developed thus give rise to different grounds for knowledge about the social world.

It is clear that metaphor is a valuable tool which can facilitate investigation of teachers' mental images of their school.

Students' Perceptions of the Classroom Psychosocial Environment

A second important factor impacting on the education enterprise is the nature of the psychosocial environment or climate in which teaching and learning occurs. The origins of the contemporary study of such climates can be traced to several significant contributions. The first was by Lewin (1935, p. 12) who held that 'One can hope to understand the forces that govern behavior only if one includes in the representation the whole psychological situation'. He coined the term "psychological life space" in order to 'indicate the totality of facts which determine the behavior of an individual at a certain moment' (1935, p. 12). Lewin (1935) broke this life space into two parts: 1) the person (P) and 2) the person's environment (E), and proposed the formula B = f(P,E) to guide one's thinking about behaviour (B) such as actions, emotions and expressions. The second contribution was by Murray (1938), who proposed that behaviour depends upon, on the one hand, needs or drives which are personality characteristics related to goal attainment, and the press of an object in the environment - such as 'foods, poisons, sensuous patterns, supports, harbingers of danger, friends, guides, enemies, suppliants that are prospective of certain consequences if approached, manipulated, embraced, commanded, flattered, obeyed or otherwise responded to' (1938, p. 121), on the other. Getzels and Guba (1957), Pace and Stern (1958), Getzels and Thelen (1960), Halpin and Croft (1963), Williams (1974) and Moos (1974) were significant early contributors too.

Moos (1974) saw psychosocial environments consisting of three sets of broad dimensions, namely those dimensions which:

1) assess the nature and intensity of **personal relationships**, such as how involved the people are, how much they help each other and how spontaneously they express their feelings in a setting;

2) tap the extent to which **personal development** in areas such as independence and achievement is encouraged or stifled; and

3) indicate **system maintenance and system change** aspects such as how orderly and organised the setting is, how clear expectations for behaviour and outcomes are, how much control is maintained and how responsive the system is to change.

Students' perceptions of the classroom psychosocial environment are associated with, and may actually predict, their affective, behavioural and cognitive learning. This claim is well supported. For example Fraser and Fisher (1982) explored relationships between classroom environment (as revealed by the responses of 2,305 12 year old students in 100 science classrooms in 30 schools in Tasmania, Australia, to the *My Class Inventory* instrument) and performance in two cognitive areas (firstly, skill in reading various scales and, secondly, understanding of the nature of science) and one affective outcome (interest in science) and concluded that 'Taken together, the . . . analyses confirmed the existence of sizeable and statistically significant associations between students' learning outcomes and their classroom environment perceptions as measured by MCI' (p. 376). Further, Fisher and Fraser (1983) reported results of a study of 2,175 Grade 8 and 9 science students in 116 classrooms in Tasmania, Australia. They calculated simple, multiple and canonical correlations between classroom environment dimensions (as assessed by students' responses to *Classroom Environment Scale)* and students' outcomes (assessed through three cognitive and six affective measures). They concluded that there was consistent significant support for the belief that there are overall relationships between the two aspects. Fraser and Fisher (1982) reported other results from a survey of the same sample, but using another environment assessment device - the *Individualized Classroom Environment Questionnaire* - and indicated that the results were not dissimilar to those outlined above. Other examples of such evidence can be seen in, for example, Anderson and Walberg (1968), Fraser (1986), Haertel et al. (1981), Walberg (1984), Walberg and Anderson (1968) and Walberg et al. (1981).

METHOD

The Sample

The data were gathered during 1992 from samples which consisted of 1923 students and their teachers in 162 classes in Grades 5 - 8 in Tasmania, Australia. A total of 48 schools (state primary, high and district highs in both rural and urban settings, and non-state schools ranging from relatively small coeducational primary schools to large single-sex schools across the K - 12 range) were represented. Of the 162 teachers, 31%

were male and 69% female; 49% were of assistant teacher status and 51% were of Advanced Skills Teacher 1 status and above; 36% had up to 10 years professional experience, 40% had between 11 and 20 years experience, and 18% had more than 20 years experience; while 52% had been at their current school up to four years, 30% for four to ten years, and 18% more than ten years.

The students were male (40%) and female (60%); in Grade 5 (27%), Grade 6 (30%), Grade 7 (25%) and Grade 8 (18%); while in the Grades 5 - 6 range students were in single Grade classes (55%) and composite groups which were normally Grades 5 and 6 together (45%).

Images of School through Metaphor

Teachers' images of their school were assessed through the administration of a questionnaire, developed for the study, called *Images of Schools through Metaphor* (ISM). ISM asks teachers to indicate the extent to which they agree/disagree that each of 26 metaphors (such as "My school is a Mental Straight-jacket", "My school is an Orchestra", and "My school is an Artist's Palette". The development of ISM, in two forms - Actual and Ideal, is explained in Grady (1993) and Grady, Fisher and Fraser (in press). Field testing of the instrument indicated that each item yields a high level of agreement (at least 70%) between respondents concerning the image which they have in mind when they indicate that their school is or is not depicted by the metaphor; that each attracts relatively few neutral/unsure responses (less than 30%); and that each item yields responses from respondents on at least four of the five points of the scale.

ISM (Ideal) has satisfactory test-retest reliability (as indicated by a two-tailed t-test for related samples). Data concerning ISM (Actual) were subjected to a one-way ANOVA in order to gain an estimate of the proportion of variance which can be attributed to a teacher's school membership. This estimate is provided by the eta^2 statistic. Table 1 shows that school membership accounted for a considerable part of the variance in ISMA scores on a number of items, ranging from a low of 22% for school as Living Organism to a high of 45% for school as Exhibition.

Respondents in the study were invited to add other metaphors. Less than 10% of the sample made contributions in this respect, which may indicate that the 26 items attend quite well to the range of metaphors which might be applicable to schools. The additional metaphors which may differ somewhat from those contained within ISM are school as Chrysalid, International Airport, Refuge, Ocean, Board Game, Holiday Camp, Jacob's Coat, Court Room, Rainbow, Pressure Cooker, Jellyfish and Whirlpool.

Table 1

ANOVA Results (eta^2) for School Membership Differences on ISMA Items (n = 162)

School as		School as	
Culture	.32	Military Camp	.32
Herd	.31	Ghetto	.29
Family	.42**	Artist's Palette	.26
Forum	.35	Machine	.34
Exhibition	.45**	Expedition	.29
Orchestra	.23	Team	.39*
Hospital	.37	Traffic Jam	.26
Creche	.42**	Negotiating Area	.36*
Museum	.32	Prison	.22
Garden	.37**	Olympic Games	.38*
Mental Straight-jack't	.26	Living Organism	.22
Shopping Mall	.41**	Theatre	.36
Beehive	.28	Labour Ward	.35

* p<.05 ** p<.01

ISM contains 26 individual items, but they can be clustered into groups of related items using factor analysis (oblique solution primary pattern matrix employing the orthotran algorithm). Following inspection of the factor loadings obtained when solutions containing various numbers of factors were proposed (from four to 13 in number), it was judged that a six-factor model was most appropriate. The criterion applied was that an item must load at least .40 on a single factor and less than .40 on all other factors. Twenty two of ISM's 26 items (i.e., all except school as Forum, as Traffic Jam, as Olympic Games and as Shopping Mall) satisfied these criteria. Table 2 portrays the factor loadings in the six-factor model for 22 items of ISM and suggests labels (Suppression, Cooperation, Celebration, Mechanistic, Basic Needs and Constrained Activity) for the six factors.

Table 2

Factor Loadings for ISM Items
(n=162)

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Suppression						
Mental Straight-jacket	.58					
Military Camp	.70					
Ghetto	.49					
Prison	.56					
Cooperation						
Family		.40				
Artist's Palette		.54				
Team		.73				
Negotiating Area		.69				
Celebration						
Culture			.79			
Exhibition			.87			
Orchestra			.44			
Garden			.54			
Expedition			.44			
Mechanistic						
Herd				.50		
Museum				.47		
Machine				.85		
Basic Needs						
Hospital					.90	
Creche					.65	
Labour Ward					.60	
Constrained Activity						
Beehive						.64
Living Organism						.76
Theatre						.62

(The only items of ISM which are included are those with a factor loading of at least .40 on one factor and less than .40 on all other factors)

Discriminant validity of each ISM factor was estimated by assessing the mean magnitude of the correlation of a factor with the other five factors. Cronbach Alpha coefficients, which provide an estimate of the internal consistency reliability for each of the factors from ISM, were also calculated. Table 3 displays this information.

Table 3

Discriminant Validity and Reliability Estimates for ISM Factors

Factor	Mean correlation with other factors	Alpha reliability coefficients
1 (Suppression)	- .05	.72
2 (Cooperation)	- .01	.64
3 (Celebration)	.25	.60
4 (Mechanistic)	.26	.57
5 (Basic Needs)	.23	.53
6 (Constrained Activity)	.23	.51

It is clear from Table 3 that the factor structure of ISM is not exceptionally strong. This is evidenced further in Grady, Fisher and Fraser (in press) for both the Actual and Ideal forms of ISM, and since metaphors, by their very nature, already cluster images associated with a person, thing or whatever, it is not surprising that attempts to "paraphrase" metaphors in this manner will be no easy feat.

My Classroom Environment

Reviews of a range of paper-and-pencil instruments to assess classroom environments have been provided in a convenient form by, for example, Fraser (1981, 1986, 1991) and Fraser and Fisher (1983). These reviews concentrate on instruments which have been developed on the basis of Moos' conceptualisation of psychosocial environments as outlined above, although Fraser (1986) also alluded to several instruments which have emerged from other traditions.

In this study, students' perceptions of the psychosocial environment of their classroom were assessed through the administration of *My Class Environment* (MCE). MCE was derived largely from the *Learning Environment Inventory* (LEI). Fraser and Fisher (1983) pointed out that development of LEI began in the late 1960s in USA as part of the research and evaluation aspects of Harvard Project Physics, and that it is an expansion and improvement on Walberg's *Classroom Climate Questionnaire*. Fisher and Fraser (1981, p. 146) also indicated that LEI derived inspiration from the theoretical contributions of Getzels and Thelen. The version of LEI provided in Fraser and Fisher (1983) contains 15 scales with seven items per scale and is for use in secondary schools, with students being asked to respond to a four point scale ranging from "Strongly Agree" to "Strongly Disagree".

My Class Inventory (MCI) (Fraser and Fisher, 1983) was developed for use with children in the upper primary grades, and it was derived from LEI (Fisher and Fraser, 1981). MCI contains three scales (Cohesiveness, Friction and Satisfaction) in Moos' Relationship Dimensions and two (Difficulty and Competitiveness) in the Personal Development Dimensions. MCI does not, however, address the third of Moos' basic dimensions, namely System Maintenance and System Change. Each scale in MCI employs between six and nine items, giving a total of 38 items. A Short Form of MCI (Fraser and Fisher, 1983), which has five items for each of the five scales, is also available.

The positive aspects of MCI are retained in MCE, but MCE attempts to overcome some of MCI's perceived weaknesses. Firstly, MCE addresses each of Moos' three broad dimensions equally. This is done by eliminating the scale Friction from the Relationship Dimensions, and adding two scales, Formality and Democracy, in the System Maintenance and System Change Dimensions. Further, the scale known as Speed is substituted in MCE for the Competitiveness scale of MCI.

MCE has five items for each of four scales and four items for each of the other two, so that, in total, students respond to 28 items. MCE, therefore, does pay attention to each of Moos' categories, but is far shorter than LEI (seven items for each of 15 scales in one version), and is shorter than the Long Form of MCI (a total of 38 items with between six and nine items for each of its five scales). Nevertheless, MCE is somewhat longer than the Short Form of MCI.

The simple language of MCI is retained in MCE, as are the simple 'Yes'/'No' response alternatives and the requirement that students respond on the questionnaire itself.

MCE attempts to overcome what may be a "double negative" problem with MCI. This is done in two ways. Firstly, fewer items than in MCI are of the reverse type, and secondly, some of those items which are of the reverse type have been rewritten, so that, for example, "Some pupils are not happy in class" became "Some pupils are unhappy in class".

The MCE instrument was developed in two different formats - Actual and Preferred. The Actual form invites students to describe their classroom environment as it actually is. The Preferred form, however, employs the same items, reworded appropriately, to describe the classroom environment as it would be ideally or as students would prefer it to be. Neither LEI nor MCI was developed originally in this manner, but in several

recent investigations Fisher and Fraser and their colleagues modified LEI and MCI in this way.

Scoring arrangements for MCE are identical to those for MCI. "Yes" responses are scored 3 and "No" responses are scored 1, except in the case of reversed items (indicated by an underscore of the item number) "Yes" is scored 1 and "No" is scored 3. Invalid responses are scored 2.

Table 4 defines each of the scales addressed in MCE, indicates the broad dimension in Moos' conceptualisation to which each scale belongs, and provides an example of an item in each of those scales.

Table 4
Overview of My Class Environment (MCE)

Scale	Definition	Moos' Dimensions	Item Example
Cohesiveness (five items)	Extent to which students know, help and are friendly towards each other.	Relationship	In my class everybody is my friend. (+)
Satisfaction (five items)	Extent of enjoyment of class work.	Relationship	The class is fun. (+)
Speed (four items)	Extent to which class work is covered quickly.	Personal Development	The pace of the class is rushed. (+)
Difficulty (five items)	Extent to which students find difficulty with the work of the class.	Personal Development	Most children are able to do their school work without help.(-)
Formality (four items)	Extent to which behaviour within the class is guided by formal rules.	System Maintenance and System Change	There is a set of rules for children to follow. (+)
Democracy (five items)	Extent to which students share equally in decision-making related to the class.	System Maintenance and System Change	Decisions affecting the whole class are made by a few children. (-)

Items with a positive orientation (+) are scored 3 for 'Yes' and 1 for 'No' while those with a negative orientation (-) are scored in the reverse manner. Invalid responses are scored 2.

The data obtained by using MCE in the study were subjected to tests of the type used to validate the instruments from which it was derived. In all cases except one, both the individual student and the class mean were used as the unit for statistical analysis.

Each item correlates positively with the other items in its scale. Table 5 displays the data concerning internal consistency reliability of each of the scales as demonstrated by the Cronbach alpha coefficient; the discriminant validity of each scale as estimated

through assessing the mean correlation of the averages of the absolute values of the scale with that of the other five scales; and the ability of each scale of MCE to differentiate between classrooms, as indicated by an estimate of the amount of variance in classroom environment scores attributable to class membership through applying the eta^2 statistic from one-way ANOVA.

Table 5
Validation Data for My Class Environment - Actual
(n = 162 classes and 1923 students)

Scale	Unit of Analysis	Alpha Reliability	Mean Correlation with other Scales	Eta^2 from ANOVA
Cohesiveness	Student	.70	.14	-
	Class	.82	.22	.25***
Satisfaction	Student	.67	.08	-
	Class	.86	.19	.34***
Speed	Student	.65	-.26	-
	Class	.79	-.41	.19***
Difficulty	Student	.50	-.11	-
	Class	.64	-.19	.16***
Formality	Student	.42	.06	-
	Class	.64	.08	.22***
Democracy	Student	.71	.03	-
	Class	.78	.35	.18***

*** $p<.0001$

Overall, the data reported in Table 5 compare quite favourably with similar data provided for other classroom environment assessment instruments - see, for example, Fraser and Fisher (1983) and Fraser (1986) for convenient summaries of such data. In particular, each scale of MCE enjoys a small mean correlation with the other scales. This indicates that MCE assesses six aspects of the classroom environment which are relatively distinct from each other (with some overlap between Cohesiveness, Satisfaction and Democracy, especially when the class is the unit of analysis). Furthermore, MCE, in comparison with the other instruments, is able to distinguish satisfactorily between different classrooms (as indicated by the eta^2 statistic), especially in matters related to Cohesiveness and Satisfaction but less well in aspects concerned with Speed and Difficulty.

Two other important points which attest to the overall validity of MCE are:
1. Only 4 student returns from a total of almost 2000 had to be discarded as being unusable. In each case this was due to respondents completing less than 80% of the questionnaire items.

2. Comparatively few students opted for an invalid response by circling both "Yes" and "No" to one or more items. Some students, indeed, wrote that they would have preferred a third possible response such as "Sometimes", but in most cases avoided any temptation to respond in an invalid manner.

RESULTS

Statistically significant correlations between scales of MCE and items of ISM are displayed in Table 6. It is important to note that, by chance alone, some eight (5%) of the 156 correlations at each level of analysis (whole sample, primary, secondary) can be expected to be significant at p=.05 and proportionately fewer at the other more stringent levels of confidence. Thus, the 20 identified correlations at the whole sample level, the 14 at the primary level and the 15 at the secondary level are somewhat greater in number than could be expected by chance alone.

Observing Table 6 from the direction of the items of ISM initially, it can be seen that 11 of the 26 items correlate significantly with at least one scale of MCE when the Grade 5 - 8 spectrum is examined, but a further six items are revealed as bearing significant relationships with at least one MCE scale when the primary-secondary split of data is exercised. No single item of ISM correlates significantly with all six MCE scales, but two (school as Family and as Olympic Games) do so with four of those scales. Generally, the confidence level of the correlations is quite modest ($p<.05$) but some correlations at the $p<.01$ level can be detected.

When Table 6 is viewed from the perspective of the MCE scales it can be noted that all scales of MCE except Formality (which does not correlate with even one item of ISM) correlate significantly (usually, but not exclusively, at the $p<.05$ level of confidence) with at least two ISM items (rising to seven in the case of Speed) when the Grade 5 - 8 continuum is the focus. When the Primary - Secondary split of data is invoked, though, it can be seen that Formality correlates with three ISM items at the Primary level and with one at the Secondary level. Further, the split points to Cohesiveness, Speed and Democracy each being correlated with a number of ISM items primarily at the Secondary level.

Despite the relatively week factor structure of ISM, what appear to be statistically significant correlations between the six factors of ISM and the six scales of MCE are shown in Table 7. In order to conduct this and other analyses concerning the correlation and predictive nature of ISM data reported here, the mean score for each factor was calculated. For example, the mean scores for Herd, Museum and Machine

Table 6

Statistically Significant Correlations between Scales of MCE and Items of ISM

Items of ISM		Scales of My Class Environment					
		Coh.	Sat.	Speed	Diff.	Form.	Dem.
Culture	Whole sample	-	-	-	-.17*	-	-
	Primary	-	-	-	-	-.28**	-
Herd	Whole sample	-	-	.20*	-	-	-
	Primary		-	-	-	.24*	-
	Secondary	-.31**	-	-	-	-	-
Family	Whole sample	.27**	.18*	-.18*	-	-	.21**
	Primary	-	.22*	-.31**	-	-	.39**
	Secondary	.39**	-	-	-	-	-
Orchestra	Whole sample	-	-	-.16*	-	-	-
	Primary	-	-	-.33**	-	-	-
Garden	Whole sample	-	-	-	-	-	.17*
	Secondary	.33**	-	-	-	-	-
Mental Straight-jacket	Primary	-	-	-	-	.22*	-
	Secondary	-.30**	-	-	-	-	-
Beehive	Whole sample	-	.18*	-.21**	-	-	-
	Secondary	-	-	-.27*	-	-	-
Military Camp	Whole sample	-	-	.19*	-	-	-
	Secondary	-.34**		.31**	-	-	.27*
Ghetto	Whole sample	-	-.20*	.19*	-	-	-
	Primary	-	-	.27*	-	-	-
	Secondary		-.28*	-	-	-	-
Artist's Palette	Primary			-.25*	-	-	.27*
Machine	Secondary	-.28*	-	-	-	-	-
Expedition	Whole sample	-	.18*	-.18*	-	-	-
Team	Whole sample	-	-	-	-	-	.17*
	Primary	-	-	-.26*	-	-	.24*
	Secondary	.30**	-	-	-	-	-
Negotiating Area	Secondary	-	-	-	-	.31**	-
Prison	Secondary	-.25*	-	-	-	-	-
Olympic Games	Whole sample	.19*	.23**	-	-.28**	-	.22**
	Primary	-	-	-	-.25*	-	-
	Secondary	.39**	.25*	-	-.34**	-	-
Labour Ward	Primary	.26*	-	-	-	-	-

* p< .05, ** p< .01

obtained from the sub-sample of 162 teachers were summed and then divided by three in order to obtain a mean score for factor 4 (Mechanistic).

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Table 7

Statistically Significant Correlations between Six Scales of MCE and Six Factors from ISM

Scales of MCE (Class means as unit of analysis)	Factor 1 (Suppress)	Factor 2 (Coop'n)	Factor 3 (Celeb'n)	Factor 4 (Mech'c)	Factor 5 (Basic)	Factor 6 (Constr)
	(Individual teacher's scores as unit of analysis)					
Cohesiveness						
Whole Sample		.16*				
Secondary	-.33**	.28*	.25*	-.34**		
Satisfaction						
Whole Sample	-.19*		.20*			
Secondary	-.24*		.24			
Speed						
Whole Sample	.20*	-.19*	-.18*			
Primary		-.32**				
Secondary	.24*					
Formality						
Primary					.21*	
Democracy						
Whole Sample	-.18*	.21*	.16*			
Primary		.38**				

* p<.05, **p<.01

Table 7 indicates that factor 6 (Constrained Activity), alone, does not correlate significantly with any scale of MCE for the whole sample or at primary or secondary levels. At the other extreme, it can be seen that Factors 1 (Suppression), 2 (Cooperation) and 3 (Celebration) each correlates significantly with a range of classroom environment scales.

From the point of view of the scales of MCE, it can be seen that Difficulty does not correlate significantly with any of the factors, while Cohesiveness, Speed and Democracy correlate significantly with a number of them at the whole sample level and/or at one or other of the primary or secondary levels.

When the data are subjected to multiple regression analysis, with the 26 ISM items together as the independent variables and the six scales of MCE as the dependent variables, R^2 values large enough to be of statistical significance ($p<.05$) are revealed in three instances. These are with Speed ($R^2 = .25$) and Democracy ($R^2 = .26$) when the whole sample is concerned and Cohesiveness ($R^2 = .52$) at the secondary level. This

means that a significant proportion of the variability in these three MCE scales is explained or predicted by the set of ISM items. The particular ISM items which are significant in the three regression equations, as indicated by the respective Beta weights, are school as Culture (ß = -.19, p<.05), as Herd (ß = .21, p<.21), as Creche (ß = -.31, p<.01), as Ghetto (ß = .29, p<.01) and as Expedition (ß = -.23, p<.05) for Speed at the whole sample level; as Creche (ß = .21, p<.05), as Museum (ß = -.20, p<.05), as Military Camp (ß = -.23, p<.05), as Prison (ß = .27, p<.05), as Olympic Games (ß = .24, p<.01) and as Theatre (ß = -.19, p<.05) for Democracy at the whole sample level; and school as Olympic Games (ß = .51, p<.01) and as Theatre (ß = -.28, p<.05) for Cohesiveness at the Secondary level.

Multiple regression analyses, with the factors of ISM as independent variables and, in their turn, the scales of MCE as the dependent variables, revealed several statistically significant results. The first is that 21% (p<.01) of variance in Cohesiveness at the secondary school level is predicted by the set of six factors, with the cluster of Herd, Museum and Machine (Mechanistic) revealing a Beta weight of .31 (p<.05). The second is that the six factors predict eight percent of variance in Speed at the whole sample level, with no individual factor being of notable importance in the regression equation. The third is that 18% of variance in Democracy is predicted by the six factors at the secondary school level, with the factor consisting of Mental Straight-jacket, Military Camp, Ghetto and Prison (Suppression) having a Beta weight of .49 (p<.01).

DISCUSSION AND CONCLUSIONS

The results presented here indicate that every item from ISM, except school as Forum, as Exhibition, as Hospital, as Shopping Mall, as Traffic Jam and as Living Organism, is associated to a statistically significant extent with at least one classroom environment scale. Furthermore they show that when an item from ISM is related to more than one environment scale the pattern is always the same, except for what appears to be one single instance. Putting this exception to one side for a moment, the pattern is that where an item is associated (either in terms of simple correlations or Beta weights) with Cohesiveness, Satisfaction and/or Democracy such association is always in a positive or a negative direction with them and, at the same time, if there is an association with one or more of the other three environment scales, namely Speed, Difficulty and/or Formality, the association is in the opposite direction. Thus, for example, school as Family and school as Olympic Games are associated with Cohesiveness, Satisfaction and Democracy in a positive direction, and with Speed or Difficulty in a negative direction. School as Beehive and as Expedition reveal similar patterns. On the other

hand though, school as Herd, as Mental Straight-jacket, as Military Camp and as Ghetto, for example, relate negatively with Cohesiveness, Satisfaction and/or Democracy, but positively with Speed, Difficulty and/or Formality.

The single exception to this pattern seems to be school as Prison (which is correlated negatively with Cohesiveness but, as indicated by its Beta weight, positively with Democracy). No explanation of this is attempted here.

Similarly, when associations between classroom environment scales and clusters from factor analysis of ISM data are considered it can be seen that whenever factor 2 (Cooperation) and/or 3 (Celebration) are involved such involvement is always in a positive direction with Satisfaction and/or Democracy and in a negative direction with Speed. In like manner, in the case of factor 1 (Suppression), when it is related to one or more scales of MCE such relationship is in a negative direction with Cohesiveness,

Clearly, there is much which is systematic between the items of ISM, between the scales of MCE, and between the items of ISM and the scales of MCE, which indicates that teachers probably think about their school in a patterned way, that students, likewise, think about their classrooms in a patterned way, and that the two instruments concerned enable a researcher to identify some of those patterns.

There is little doubt that the images of school which fall into factor 2, that is those related to Cooperation, are positive in that where teachers see their school in this light their students view the classroom environment in a positive light also.

It is apt to recall here some of the messages that are found in the literature concerning cooperative schools and cooperative classrooms. Slavin (1980), for example, was very supportive of Teams-Games-Tournament and other such structured and unstructured cooperative learning/teaching strategies. Not only do they seem to be more than adequate (in comparison with more traditional techniques) in facilitating learning of knowledge and skills, but they also appear to be superior in promoting affective outcomes such as liking for school, concern for others, racial tolerance and self esteem. Similarly, Johnson and Johnson (1989), in their book entitled *Leading the Cooperative School*, explained how cooperation, caring and committed relationships, joint goals, encouragement and accountability could be achieved through the establishment of collegial support groups, task forces and *ad hoc* decision-making groups. Two metaphors employed to good effect by Johnson and Johnson were school as Family and school as Team. Sergiovanni's (1992) advocacy of school as Community fits this

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perspective too. The results presented here align closely with these sorts of prior contributions.

If it is true that families stick together it might be predicted that the longer a teacher has been at a particular school the more likely he or she is to view the school as a Family. A split of the data on the basis of the number of years a teacher has been at his or her current school supports such an hypothesis. The mean score for school as Family overall is 3.88 but teachers who have been at the school for less than four years generate a mean score of 3.68 on the item, while those who have been at the school for four years or more indicate a mean score of 4.09 on it. Perhaps those who have been in the school for a considerable amount of time become the "cultural priests" who teach others (enculturate them) that in this school we support each other, we give everybody a say, we stick together and so on. If this enculturation process is successful it would surprise if teachers left such learnings outside the classroom door.

It usually takes considerable time for an artist to produce a valued product - perhaps inspiration has to come to the fore, colours have to be mixed and applied, perhaps the artist has to wait for a certain pose or a particular light intensity, and perhaps time has to elapse before a coat can be applied upon another. If this is so it might be imagined that a teacher who saw the school as an Artist's palette may very well ensure that students are given plenty of time in the classroom to daydream, experiment, refine, start again and so on as they go about creating their knowledge of themselves and the world about them. If teachers see the integrity and worth of all their colleagues (read colours) in the school being respected they may very well carry a similar attitude into the classroom. To the extent this is true one could easily imagine that students would perceive the classroom to be Democratic to the extent that everybody would have a say in what is done within it.

In Tasmania at least, there has not been a strong tradition of negotiating the formal curriculum or assessment of achievement between teachers and students in Secondary schools. The concept, however, is one being advocated in some quarters, and as teachers begin their experimentation with it perhaps they are doing so within a set of constraining rules concerning the processes and the products.

Turning to the cluster of images which were labelled as Suppression, it is not difficult to remember details associated with the image painted below of aspects of school when at least one of us began teaching (at the secondary level in the early 1960s). Students responded to a siren and lined up on parade at the start of the day. Flanked by teachers (warders perhaps!) they were brought to attention by a senior master (never a woman,

even though some senior positions on staff were occupied by women), then put at ease and provided with information thought necessary for them to get through the day. Finally they were brought to attention again, instructed to turn to the right or left and to quick march, in step to accompanying military music, towards their classrooms. Prefects lined the route to be taken, and those students who talked were likely to find themselves on detention later in the day. At lunch time children were confined to the quadrangle, and teachers did yard duty by wandering the balcony which overlooked the quad. When an adult visitor came to a classroom students stood to attention. The roll was called twice each day and students were expected to say "Present, Sir/Miss". All students wore uniforms. Teachers, in the privacy of the staffroom usually, talked of the "chalkface" and the "trenches" and of the previous Principal who boasted that "No child, I repeat no child, can take six of the best in the morning and another six in the afternoon - Monday, Tuesday, Wednesday, Thursday and Friday - and continue to be defiant the next Monday". Teachers signed on and off each day, called the Principal by his or her family name, and wore a tie if male and a dress or skirt if female. Most male teachers caned errant boys regularly (even though the Principal had authorised formally only some or his more senior colleagues to carry out such punishment) while such girls may have found themselves in relative isolation in the "snake pit".

The image (laced also with sounds and smells) recalled above aligns fairly closely with what teachers see falling into the Suppression cluster discussed here. That image may have been appropriate in the early 1960s, but one ought query whether it is appropriate in the 1990s. Some people do argue that a return to the Military Camp/Mental Straight-jacket sort of school, with its suppression of students and, perhaps, teachers too, is desirable. The results presented here, though, suggest that other images of school are more likely to be associated with quality learning by students.

Like the group of images to do with Cooperation, the set which attends largely to Celebration is generally positive in nature. This finding ought come as no surprise, for through celebration success is recognised and rewarded, failure and loss are buried and mourned so that a new start and fresh directions can be entertained (see, for example, Deal, 1990), heroes are worshipped, stories are told, icons are revered and vision is communicated. Through these practices students and their teachers learn about what is valued in the school, acquire direction for their energies and become imbued with courage to dare to strive for excellence. In addition, too, attributes such as courageous persistence and goal orientation associated with this cluster are likely to play a positive role.

Images associated with Constrained Activity ("programmed activity" may be an equally apt label) within the school as seen by teachers seem to be unrelated generally to students' perceptions of their classroom environment. Nevertheless, teachers who view their school as a Beehive may, knowingly or unknowingly, tend to engage their students in considerable work which is not overly difficult but which keeps them busy without being too rushed.

In general terms it can be argued that it has been shown that students perceive classrooms in the best light when their teachers see the school as Cooperative and Celebratory and the reverse when their teachers see the school as being Suppressive, Mechanistic or concerned largely with Basic Needs. This conclusion applies regardless of the level of schooling under consideration, however it must be recognised that different individual images and clusters of them often correlate with and/or predict variance in classroom environment scales at the primary and secondary levels. One of the most outstanding results in this respect is the frequency with which secondary students' sense of Cohesiveness is associated with or predicted by scores on individual ISM items. A perusal of the results suggests that, if a secondary school's leadership team is concerned about the ease with which new students negotiate the transition from the primary level, especially the Cohesiveness aspect, it may wish to think about whether the school is too much Herd, Mental Straight-jacket, Military camp, and/or Machine, for example, and too little Family, Garden, Team or Olympic Games.

Another tendency worth mentioning is that it seems that secondary students' perceptions of the various classroom environment scales is associated with a greater range of teachers' images of school. This, perhaps, is due to the more departmentalised and less tightly-coupled nature of secondary schools, but whatever the cause there is scope for secondary leadership teams to consider the vigour with which they promote a set of favoured metaphors and images. This is not to say, of course, that there is no scope for such leadership activity at the primary level too.

It is apparent to us that school leaders ought consider it important to inquire into the nature of the images their teachers have of their school and to contemplate ways of building or strengthening particular images in them. This paper offers guidance as to what the preferred images might be, since those concerned with cooperation, celebration, goal orientation and courage (as opposed to those associated with suppression, constrained activity, mechanical response and satisfaction of basic needs) seem to be associated in a desirable direction with students' perceptions of the various classroom environmental scales. To the extent that these images are acquired through storytelling, ceremonies, metaphors and other symbols and practices, school leaders can

take guidance from this paper in choosing which stories to tell, which events to recognise at ceremonies, which metaphors to incorporate in their written and oral language, which heroes to worship publicly, and so on. As an example, it has been shown that a criterion for deciding whether or not to call a special school assembly to recognise publicly a particular event is likely to be: "Would a family or a team get together on such an occasion?" If the answer is judged to be "Yes", then the school assembly is likely to be appropriate.

The study also showed that the *Images of Schools through Metaphor* (ISM) and *My Class Environment* (MCE) can be useful instruments in identifying and quantifying important aspects of a school and its classrooms, and in assisting personnel to probe and modify aspects of them. Once again, it was demonstrated that a short paper-and-pencil questionnaire can be used with confidence to assess classroom environments. What is more, the study broke new ground in that it demonstrated that a simple, economic and open-ended questionnaire, employing metaphor, can be used to good effect in order to gain some insight into teachers' images of their school.

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